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## COMMUNITY-BASED, ECOLOGICALLY APPROPRIATE FIRE MANAGEMENT PROGRAMS

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In two of the last three years, The United States has had some of the most severe fire seasons since the 1950s. When we needed help, we've been able to count on wildland firefighters from around the world. We are grateful for the support. We have learned that just getting help on large fires is not the answer; to find the answer, we must look at the underlying causes – the health of the forests.

Today I will share some of my perspectives on wildland fire management in the United States—where we are and where I think we're going. I will also share some thoughts on what we can do to adapt what we have learned in the United States and how we can work together to develop a stronger global fire management community.

The U.S. Forest Service is one of the five federal agencies with wildland fire responsibilities in the United States. The Federal agencies protect the National Forests, National Parks, and other Federally managed lands. In addition, each of the 50 States and the several territories have fire protection responsibility on millions of acres of land, and there are counties, cities, and other local jurisdictions all working together to provide fire protection for the forests and grasslands and to protect the life, property, and natural resources of our citizens. While this may appear to be a very complicated system with so many different agencies, there are good reasons to have a system where local interests are a key factor in the fire management program.

### **I'll start by offering some perspectives on the state of wildland fire management in the United States:**

- We are learning that protection strategies for many forests and grasslands require *using* fire, not excluding it.
- We are learning the social sciences need to be integrated into our fire management policies and strategies, so that fire management will be socially acceptable, as well as ecologically appropriate.
- And we are learning the need to adjust our suppression strategies to fires of different sizes and complexity.

### **The Need to Balance Fire Suppression with Fire Use**

Sustaining healthy, resilient fire-dependent ecosystems is going to be the key to protecting people and property. Fire exclusion characterized our fire management for most of the 20<sup>th</sup> century. We thought we could suppress every fire. In fact, our policy 30 years ago required us to suppress every fire, no matter what the cost. We have learned those fires had a role in keeping the ecosystems healthy. There will always be a need to fight fire, but the wholesale exclusion of fire was a major factor in putting our fire-dependent ecosystems at risk, particularly our long-needle pine forests, such as ponderosa pine.

We are seeing the results of suppressing all of those fires today. We have about 161 million hectares at risk from wildland fires throughout the United States. If a fire occurs under these conditions it can compromise human safety and ecosystem health.

The risk is due to altered fire regimes. Fire regimes are an expression of fire's role in terms of historical or natural fire frequency and burning intensity. Fire managers expect infrequent but large, stand-replacement fires in our long-interval fire regimes. Ecologically, that is how these forests were established. The forests grow, mature, begin to decay, and then a fire burns through, removes the old material, and prepares the site and the cycle starts over. Alarmingly, however, we are beginning to see landscape-scale, stand-replacement wildfires in our short-interval fire regimes, such as ponderosa pine.

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Sustaining these forests will require a management approach that uses fire as the basic tool. Historically, the ponderosa pine canopies were very open, with trees that were very big and widely spaced. Low-severity fires burned through on the ground every few years without doing much damage to the big trees. But fire exclusion and other factors allowed small trees and brush to build up in the understory. Today, where we once had 50 large trees per hectare, we might have thousands of small trees that provide a continuous ladder of fuels from the ground into the canopy. And now, when we are in a severe drought and we get a fire, it climbs into the canopy and becomes severe and stand replacing. In 2002, four states in the West had their biggest fires ever, and in 2003, a fifth state recorded one also. That's partly because the fire regime has changed in our long-needle pine forests.

We recently mapped fire regime condition classes in relation to wildfire activity in the United States. In many of our ecosystems, fire regimes have significantly changed from their historical range. In the West, nearly all of the area most at risk is ponderosa pine that has had a prolonged absence of periodic underburning.

From a social perspective, ponderosa pine forests are most common at lower elevations, where most people live, work, and play. That makes them of particular concern because of the huge danger an uncontrollable fire can represent. It is no coincidence, then, that many of our most costly, damaging, and destructive wildfires are occurring in these changed ponderosa pine forests, often in close proximity to towns and communities. Stand structure is much more dense, with small trees and undergrowth choking the forest. Species composition has often shifted to Douglas fir and other fire-intolerant species. And people have moved into the forest. While these concerns are most acute in the long-needle pines, many of these issues and concerns play out in many forest types all across the country.

That brings me to another thing we are learning: The *fields* of science we will need in fire management are evolving. Although the physical sciences will remain essential for understanding ecosystems and fire behavior, we need a deeper understanding of the social sciences to help us understand the decisions we will need to make to ensure the health, resilience, productivity, and safety of fire-dependent ecosystems.

People are moving to places they value for a better quality of life. People value forested settings. They value places with water, mountains, and amenities, such as hunting or hiking on public land. People are moving to the West or South in the United States to find these places. Many of these places were recently wild and now have urban development and high populations. We refer to them as the wildland urban interface (WUI). These are also the regions where long-needle pine ecosystems present the greatest risk.

The result is often a dangerous mix. People are moving in record numbers into forests that are increasingly susceptible to crown fire. The very qualities that people value—dense forests that provide a sense of seclusion and screening from neighbors—these same qualities put people at risk. The risks are enormous, and they go way beyond individual homes. If their houses are saved but the surrounding landscape is blackened, then as far as they're concerned, they've lost the very values that brought them there. They may not have lost their house, but they may have lost their home.

Fire protection in the wildland urban interface is therefore not just about protecting houses—it's about protecting quality of life. We're expected to protect the entire landscape—not only communities, but also watersheds, wildlife habitat, viewsheds, recreational opportunities and other amenities, and forest health—everything people value in the interface, everything they move there to find.

But people's understanding of the environment and their values are often at odds. So people often object to a thinning project. Some people might object in principle to cutting any trees at all—there are even counties with ordinances against tree cutting. Other people might see it as affecting their quality of life if we remove most of the trees near where they live.

We think we have the ecological science to restore fire-dependent ecosystems and better protect the people we serve, and technically maybe we do. But technical solutions aren't enough. We also need social, legal, and regulatory solutions that focus on the dynamics of fire-prone forests.

That's why we will need a better understanding of the social sciences. If we're going to protect quality of life in the wildland urban interface, then we've got to do more to understand

people's motivations so we can better influence, and respond to, social attitudes and behaviors. We have to do a better job of addressing public biases and fears in connection with fuels management and fire use in our fire-dependent ecosystems. We also have to do a better job of addressing public preferences and lifestyles in the interface. For that, we will need to take such fields as sociology, communications, and community relations, into account when we formulate policy for public lands, private lands ... wild lands.

A third thing we are learning has to do with our suppression program in the context of the fuels and fire environment. Despite significant advances in our firefighting technology and budgets, we're seeing an upward trend in the number of acres burned per acre protected. And in spite of all the advances we've made with personal protective equipment, the number of firefighters overrun by fire and firefighter fatalities remains a major concern.

We are coming to realize that for the United States there are four distinctly different kinds of fire. By "kind" I mean the stages, sizes, and complexities from the time of ignition through final control. We have good suppression strategies for two of them. But there are two other kinds of fire our traditional suppression strategies are not working as well, and it shows in our statistics.

The four kinds of fire occur along a spectrum of size and complexity. They range from the small, initial-attack fire; to the extended attack fire, a fire that is starting to escape and transition to a more complex and hard to manage large fire; to the large fire – one that requires commitments of crews and equipment for days or weeks; and finally, to the enormous and complex "megafire." We have sound approaches for dealing with the small initial-attack fire and with the large fire. We train, organize, and staff to address the unique characteristics of these two types of fire. But for the transition or extended-attack fire and the megafire, we do not do this as well.

Let me explain: We tend to attack the transitioning fire like we do an initial-attack fire; we just attack it harder. And we tend to treat the megafire like the large fire, only—believing more is better—we fight it with more people, more equipment, and more money.

We might argue that the extended-attack fire and the megafire are our two most important kinds of fire—one the transition, extended attack fire, in terms of safety; the other, the megafire, in terms of cost. Some 70 percent of our fireline fatalities occur on transition fires, such as South Canyon with thirteen fatalities in 1994 or the Thirtymile fire with four fatalities three years ago. We get into trouble when we keep using initial-attack tactics on a fire that requires a shift in thinking about potential fire behavior. An extended attack fire is one in transition from a routine, small fire that we suppress easily every day during the fire season. It is one where fire behavior has become too extreme for initial-attack tactics to be safe and effective and when we fail to recognize that shift has occurred – we put firefighters at risk.

Large fires and megafires are less than 1 percent of all of our fires, but they account for a disproportionately high percentage of our total suppression costs—about 80 percent—and of our total area burned—about 90 percent. We've learned that we can't suppress big fires burning under extreme conditions. The megafire accounts for the majority of these costs and acres burned, even though these fires probably only comprise one-tenth of 1 percent of all fires.

Last year, the US sent a small group of US fire managers on a technical assistance trip to Portugal during their disastrous fire season. The Portuguese fires burned over 410,000 hectares. This was their worst fire season ever - burned four times the annual average and the largest fire was twice the size of their previous largest fire. Spain, France, and other Mediterranean countries had a similar season. Many of you read about the Christmas fires around Sydney, Australia in 2002, and in 2003, the US sent 39 fire specialists to the State of Victoria in Australia to assist with their fires. The mega fire is not just a US phenomenon, so I hope we can learn together how to improve our management of the mega fire.

We are learning that we need to back off and take a defensive posture with both the extended attack and the megafire. Megafires are qualitatively different from large fires and need a qualitatively different type of management, just as extended-attack fires need a qualitatively different type of management from initial attack. For both kinds of fire, we need to develop discrete strategies in terms of policy, procedures, and practices.

Many of us believe that our ability to successfully manage fires, that our true first line of defense, will ultimately be based on our success in treating the buildup of fuels. Where we're using fire and mechanical fuel reduction tools to take a little heat out of the woods. Basically, we need to fight fire where we must and use fire where we can. We are getting megafires in long-needle pine forests because fire regimes there have been altered.

The long-term solution is to restore these forests to something more closely resembling their historical condition and *then* we can get the right kind of fire back into the ecosystem. Returning fire to these ecosystems is not just for fire protection, although that will certainly be a very important benefit. We also need to restore these areas in order to provide multiple benefits; wildlife habitats, restoring watersheds, and providing a landscape where people can recreate and enjoy their forests.

Perhaps one of our lessons in accelerating fuels reduction work involves learning to mobilize for the use of fire just like we mobilize for fire suppression. Although we've made progress toward a more balanced wildland fire policy, we still have to work on overcoming the bias toward fire suppression that stems from a legacy of fire exclusion.

### Next Steps

The three things we are learning—the need for more fire use, a better understanding of the social sciences, and appropriate suppression strategies for the four kinds of fire—these things are all interconnected. In fact, our ability to make progress in one area depends on an understanding of all of them.

Our objectives in wildland fire management are clear. Our aim is to protect values—to protect quality of life by restoring fire-dependent ecosystems. For that, we need to establish a total, balanced program of fire management where there is no longer any bias toward fire suppression or fire use. A sound fire policy must be socially acceptable, ecologically appropriate, and economically efficient over time.

We know that we need to thin overcrowded forests to reduce fire danger in the wildland urban interface. The result would be a forest that's very open, with maybe only a hundred trees per hectare. But, as we've discussed, people move to the interface partly because they value the sense of seclusion and the sense of "naturalness" they get from lots of trees. They're used to seeing thick forests, with maybe thousands of trees per hectare—it's what they *think* of as natural and healthy, even if it isn't *really* natural or healthy or resilient.

As wildland fire professionals, we need to prompt a larger public lands policy debate that deals with values and tradeoffs if we hope to redeem our protection mandate. And we need to do it in the context of the dynamics of fire-dependent ecosystems. That is the next big step in the evolution of wildland fire policy in the United States—and maybe in other countries as well.

I believe the most effective fire management programs use local resources, rely on local knowledge, and match local values. There are examples from around the world of community-based fire management programs that help protect communities and forests, and are based on social and political realities in their local communities. These examples are based on the idea that fire management programs must use local resources, knowledge, and values to be successful.

In spite of all of the issues we are confronting in the United States, I am proud of our successes and achievement during the past few years. We have faced some of the most difficult fire seasons in our nation's history. To the degree we have been successful, we have been successful in the United States because we have learned how to work together. We have mutual aid and reciprocal agreements with other Federal, State, and local fire departments. With our system, a member of a rural volunteer fire department in Florida can get training and experience and become qualified to fight fires anywhere in the US.

International cooperation works on the same basic principles that we use domestically with the US and that many of you use in your countries. But I would like to present you with a challenge for this Conference if you want to expand your networks with neighbors or people on the other side of the world. With our partners, the relationships came first and the agreements and cooperation followed. We participated in technical exchanges, planning meetings, and training programs for several years

before any firefighters ever left home. With an understanding of each of our systems and programs, we were able to develop agreements and turn them into operational programs.

My challenge to you is to use your time here to develop relationships. Get to know potential partners, discuss what kind of networks can be built. If anything can be learned from our experience it is this: Relationships come first; the partnerships, networks, and agreements follow.

Following the International Wildland Fire Conference in Sydney, Australia, I participated with others from all sections of the globe in the International Wildland Fire Summit. We were challenged at that Summit to promote and support solutions to many of these problems I have discussed. While I do not want to suggest that all of the lessons from the United States can be applied to other countries with different laws, ecosystems, and social systems, I do believe in the principle of developing fire policies compatible with the ecology of the forests and that effective fire management programs should be community-based. This applies in the US and I believe it applies throughout the world.

We have learned that all fires are not alike. Just because fires can be suppressed does not mean they should be suppressed. I also know that many societies have very strict laws based on beliefs that planned or prescribed fires cannot be used as a tool to maintain the forests. Those social, political, and ecological conditions, make it even more important that everyone work to develop community-based, ecologically appropriate fire management programs.

I plan to continue to support the results of the Summit and work with our partners around the world to establish networks and mechanisms where regional fire managers and work together to help each other solve common problems. This Conference presents another opportunity to exchange ideas, perspectives, and visions for the future of wildland fire management. I am proud that the US Forest Service has been able to play a part in supporting the conference. On behalf of all of us from the United States, I want to thank Ronaldo Soares and the coordinating committee for inviting us to participate.

I thank you for the honor of sharing some of my thoughts with you. I look forward to hearing from you as we move ahead with a global vision of fire management.